

**Amendment and Response Under 37 C.F.R. 1.116**

Applicant: Edward Fuergut et al.

Serial No.: 10/529,565

Filed: October 31, 2006

Docket No.: I431.126.101/FIN481PCT/US

Title: ELECTRONIC COMPONENT AND A PANEL

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**REMARKS**

The following remarks are made in response to the Final Office Action mailed August 31, 2007. With this Response, claims 10, 15 and 19 have been amended. Claims 10-25 remain pending in the application and are presented for reconsideration and allowance.

**Claim Rejections under 35 U.S.C. § 103**

Claims 10-25 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Hoffman (US 6,737,750) and Ma (US 6,271,469). Applicants respectfully traverse these rejections.

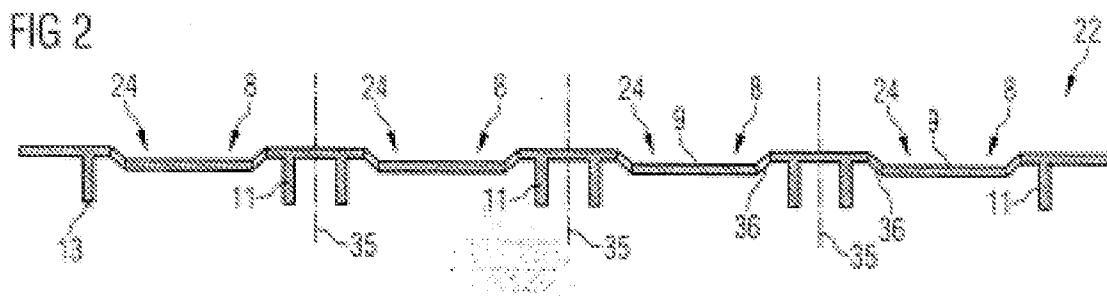
***Claims 15-18***

To establish *prima facie* obviousness, the combined prior art references must teach or suggest each claim element. *See* MPEP 2143.03. Applicants respectfully contend that the combination of Hoffman and Ma fail to disclose all claim elements and therefore, the claims are patentable over the combined references.

For example, claim 15 (which has been amended only to correct an informal error) includes

“producing a leadframe with component positions arranged in rows and columns, whereby a component position comprises a chip island and flat conductors which surround the chip island, ...  
applying the leadframe with stacked semiconductor chips to the carrier...  
[and]  
embedding the leadframe with stacked semiconductor chips and bonding wire connections in a plastic compound to form a composite body on the carrier....”

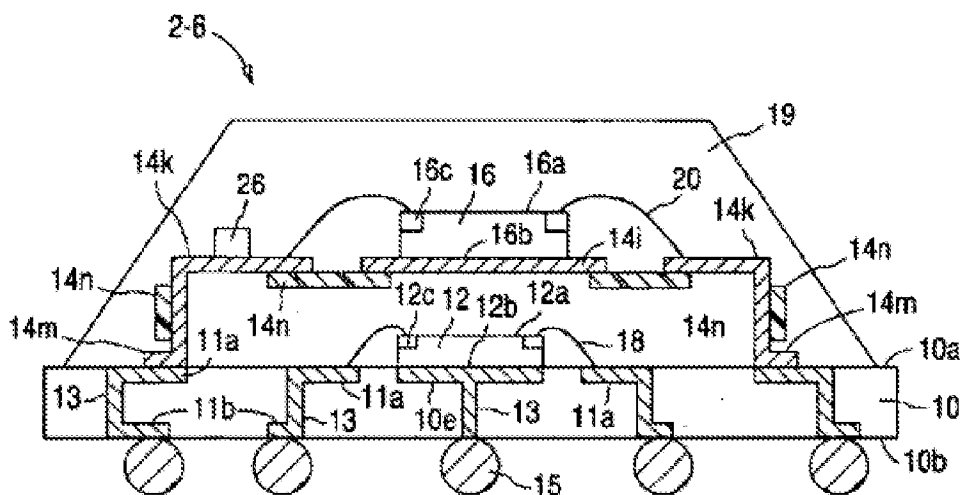
Figure 2 of the application (reproduced below) illustrates an example of the leadframe 22, including the flat conductor structure 8.



Regarding this element of claim 15, the Office Action refers to col. 12, lines 1-5 of Hoffman, which states,

“In step 202, a substrate strip for making a plurality of packages 2-1 is provided. The substrate strip includes a single row or a two dimensional array of interconnected substrates 10, which ultimately will be cut apart as a final assembly step.”

The Office Action refers to Figure 6A of Hoffman regarding component positions. Figure 6A of Hoffman is reproduced below.



**FIG. 6A**

Hoffman thus teaches a substrate strip 10 for making packages. However, Hoffman does not disclose a *leadframe* with a plurality of component positions. Rather, a plurality of separate

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die pads 14i are attached to the substrate 10. To the extent that the substrate 10 of Hoffman can be considered a “leadframe,” Hoffman does not teach encapsulating the “leadframe,” or substrate 10. The die pad 14i and leads 14k appear to be encapsulated, but the die pad 14i does not have component positions in rows and columns. Instead, each die pad 14i has a single component position. The substrate 10, which the Office Action equates to the leadframe recited in claim 15, is not encapsulated in the encapsulant 19. Instead, the encapsulant 19 is *over* a portion of the substrate 10, with at least edge portions 10a not covered at all by the encapsulant 10.

In contrast, claim 15 includes providing a leadframe with component positions in rows and columns (see the leadframe 22 and conductor structure 8 in Figure 1 above), and embedding this leadframe with component positions in a plastic compound.

Since the combination of Hoffman and Ma fail to teach or suggest providing a leadframe with component positions in rows and columns, and embedding the leadframe in a plastic compound, this combination of references cannot render claim 15 obvious. Claim 15 is therefore believed to be allowable over the combination of Hoffman and Ma.

Moreover, claims 16-18 all ultimately depend from claim 15 and are therefore allowable for at least the same reasons.

***Claims 10-14 and 19-25***

Claims 10 and 19 have been amended to more clearly describe the claimed devices. As such, independent claims 10 and 19 each recite, “the flat conductors extend to edge faces of the plastic encapsulation compound.”

As noted above, the claimed electronic component is manufactured using a leadframe with a plurality of component positions arranged in rows and columns. Component positions are held together in the leadframe by connections between the flat conductors of adjacent component positions. Therefore, a single leadframe is positioned over a plurality of chips arranged in rows and columns – the lower chips of the stack. After the leadframe is embedded in the plastic

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housing and the rewiring layer is applied to the overall upper face to form a panel, the individual packages are singulated from the panel.

Since the upper semiconductor chips are positioned on a leadframe in which the flat conductors of adjacent positions are connected together (see Figure 2 reproduced above), the flat conductors extending between adjacent component positions are severed in the singulation process. Therefore, the metallic edge of the flat conductors extends to the edge faces of the plastic compound. An example of this is illustrated in Figure 1 of the application. In contrast, Hoffman teaches using individual support structures 14 for each component position so that the support structure 14 is positioned entirely within the encapsulation.

Thus, claims 10 and 19 are believed to be allowable over the combination of Hoffman and Ma.

Claims 11-14 and 20-25 all ultimately depend from either claim 10 or 19. As such, they are allowable for at least the same reasons.

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**CONCLUSION**

In view of the above, Applicant respectfully submits that all of the pending claims are in form for allowance. Therefore, entry of this paper is believed proper in accordance with 37 CFR 1.116, and reconsideration and withdrawal of the rejections and allowance of claims are respectfully requested.

No fees are believed to be required under 37 C.F.R. 1.16(b)(c). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 50-0471.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to Mark L. Gleason at Telephone No. (612) 573-2000, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

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